

MassDEP Field Assessment and Support Team (FAST)

Framingham – General Chemical Facility

August 6, 2012

Air Monitoring During Initial Scarification Operations



Background

On August 6, 2012, the MassDEP FAST Mobile Laboratory was deployed to the General Chemical facility on Leland Street in Framingham, to monitor air quality during the initiation of scarification operations in Building No. 1. The laboratory arrived at the site at about 10:45 AM, and departed at the cessation of cleanup activities for the day, at about 6:15 PM.

While scarification of the concrete floor was occurring in Building No. 1, power-washing activities were being implemented in various areas to the east. A tent was initially used to contain the spray from the power washing operations near the fence-line; later in the afternoon, work done in more central ("Loading Rack") areas was not done under a tent.

A tiered air monitoring program was instituted by MassDEP to evaluate remedial air emissions:

- MassDEP personnel would periodically survey property locations with a hand-held photoionization detector (PID), to determine concentrations of Volatile Organic Compounds (VOCs).
- Four stationary *AreaRAE* monitors were positioned around the facility, designated as DEP-1, DEP-2, DEP-3, and DEP-4 on Figure 1. Each of these units was equipped with a 10.6 eV photoionization detector (PID), which continuously transmitted data every 2 seconds to a receiving unit located in the mobile laboratory. Each AreaRAE monitor was programmed to alarm if a value of 0.1 ppmV was exceeded (the lowest setting for these units).
- A Thermo/MIE pDR-1500 monitor was set up on the southeasterly (downwind) area of the site, to provide real-time measurements of dust and aerosol concentrations in the ambient air.
- Over the course of the day, air samples were obtained in 1 liter bags at 8 different locations on the property, based upon cleaning activities, wind direction, PID readings, or odor conditions. Each of these samples was promptly analyzed on a HAPSITE Gas Chromatograph with a Mass Spectrometer (GC/MS) in the mobile laboratory.

In addition to activities by MassDEP, personnel from Prime Engineering were monitoring air emissions with 3 dust monitors and two PID meters. Air sampling canisters were also positioned at the upwind and downwind fence-lines to obtain time-weighted samples for analysis by EPA Method TO-15.

Weather Conditions

It was a warm and sunny day, with temperatures above 80°F. Regional winds were 5 – 10 MPH from the west throughout the day. Data from the 10-meter high weather station on the mobile laboratory recorded wind speeds of 4 – 8 MPH, with winds from the west/northwest. Given the presence of a variety of structures and canopies at the facility, however, localized and transient near-ground-surface eddies may have further influenced air flow and contaminant transport patterns.



Figure 1 – Location of MassDEP AreaRAEs and Air Samples

Results

Time-weighted-average readings (60 seconds) on the downwind dust and aerosol monitor were $0 \mu\text{g}/\text{m}^3$ throughout the day. Volatile Organic Compound (VOC) data from the PID sensor on the four AreaRAE units are presented in Figure 2. GC/MS data from the 8 discrete air samples are presented in Table 1.

Discussion

As can be seen in Figure 2, there were initial low-level positive PID responses (0.1 ppmV) on AreaRAE DEP-1. At the time of these readings, DEP-1 was temporarily positioned on the northeasterly fence-line, near the ultimate location of DEP-3 (see Figure 1). After a hand held MSA PID meter verified these low level detections, a 1 liter air sample (# 002) was obtained and promptly analyzed on the HAPSITE GC/MS. As shown in Table 1, this sample contained low levels ($< 2 \text{ ppbV}$) of Tetrachloroethylene, Styrene, and Toluene, below fence-line action levels.

DEP-1 was subsequently moved to an upwind position, and DEP-3 was placed in this northeasterly area of the site. All subsequent readings for DEP-1, and all readings for the other AreaRAE units, were 0 ppmV throughout the work day.

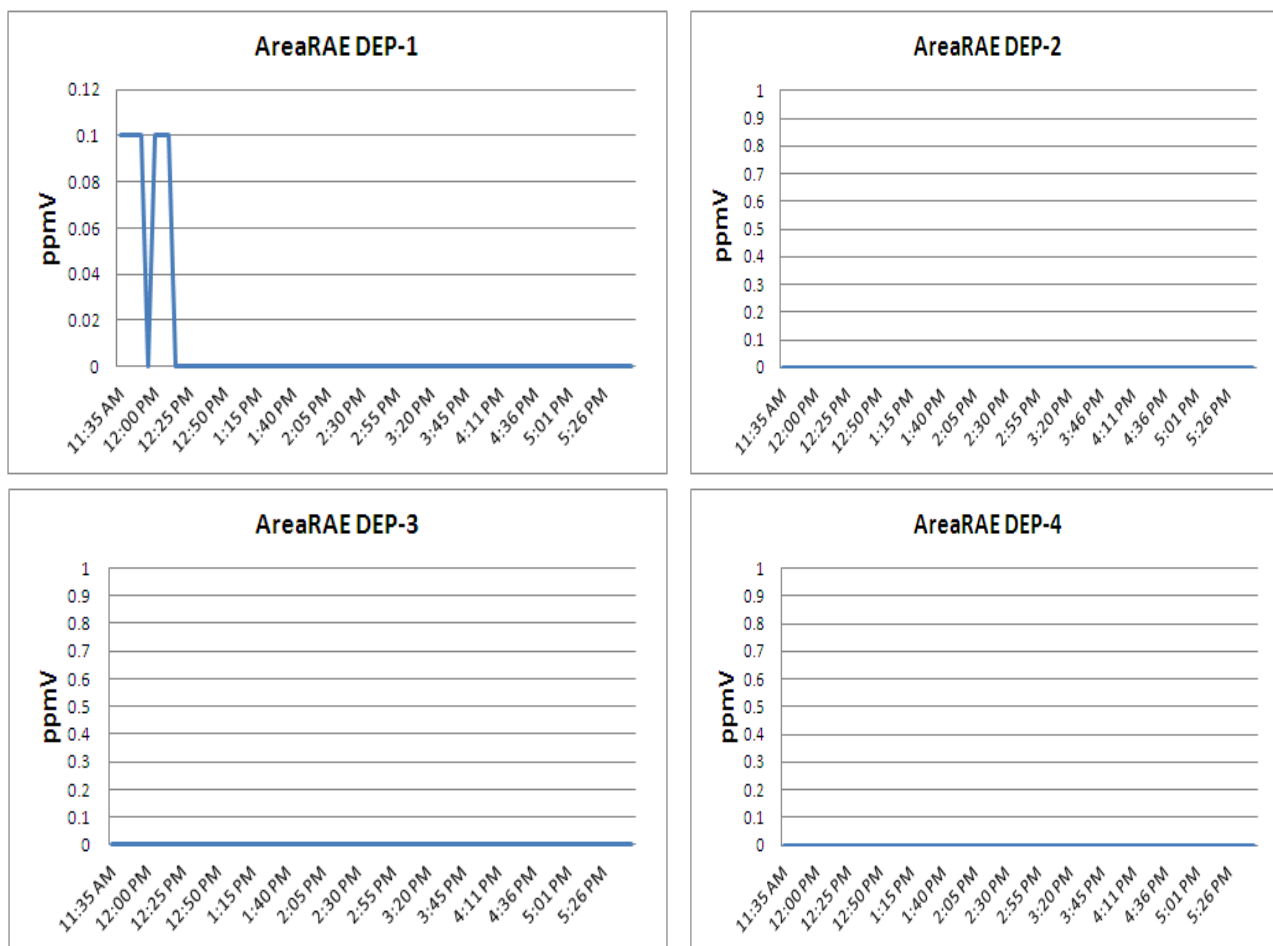


Figure 2 – AreaRAE Data

As can be seen in Table 1, only low or trace concentrations of VOCs were detected in the 1 Liter air samples obtained at the site. Unlike earlier efforts, there were no significant chromatographic peaks indicating the presence of non-target analytes (e.g., Cyclohexane).

Individual data reports are appended to this report.

Summary and Conclusions

A multi-tiered air monitoring program was conducted by MassDEP personnel over the course of invasive cleaning activities at the site, during a time period when scarification activities were being initiated in Building No. 1, and power washing was occurring in other areas of the site.

There were not significant levels of VOCs or dust noted at the site during these activities.

Table 1 – Volatile Organic Compounds Detected in Air by GC/MS, ppbV¹

Analyte ²	001	002	003	004	005	007	008	009	RL ³
	11:20 AM	12:10 PM	12:35 PM	1:02 PM	1:45 PM	2:50 PM	3:30 PM	4:10 PM	
	<i>SE Side of Facility</i>	<i>Near AreaRAE 3</i>	<i>Near AreaRAE 4</i>	<i>Outside Bldg No, 1</i>	<i>Near AR-3 and Tent</i>	<i>50 ft east of tank farm</i>	<i>SE corner of site</i>	<i>Loading Rack area</i>	
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5
Chloroethane ⁴	N.D.	N.D.	N.D.	N.D.	N.D.	3.9	N.D.	N.D.	5
Trichloromonofluoromethane	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	30
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Cis 1,2-Dichloroethylene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Chloroform	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
1,2-Dichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5
1,1,1-Trichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.2	N.D.	N.D.	1
Benzene	N.D.	N.D.	N.D.	0.3	N.D.	N.D.	N.D.	N.D.	1
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Trichloroethylene	N.D.	N.D.	N.D.	N.D.	N.D.	0.6	N.D.	N.D.	1
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Toluene	0.6	0.9	0.5	0.5	0.5	0.3	0.3	0.7	1
Tetrachloroethylene	0.4	1.9	0.4	N.D.	N.D.	0.6	N.D.	N.D.	1
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Ethylbenzene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
p/m-Xylene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
Styrene	9.9	1.6	2.0	0.5	0.8	1.1	1.0	0.8	1
o-Xylene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5
1,2,4-Trichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5
HexachloroButadiene	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5
Cyclohexane ⁵									NA
Hexane ⁵									NA
2-Methylheptane ⁵									NA

Table 1 - Footnotes

¹N.D. = Not Detected; italicized values are estimated concentrations less than the Reporting Limit

²Purple Shaded rows are chemicals that were reportedly formerly stored at the facility

³RL = Analytical Reporting Limit (i.e., the minimum concentration that a contaminant can be reliably *quantified* – lower levels can be *detected*, but their concentrations can only be estimated)

⁴Chloroethane is often found in air sampling bags analyzed by the HAPSITE GC/MS, and is thought to be a sampling bag or system contaminant, and therefore not present or present at lower levels

⁵Orange shaded rows are chemicals that are not method analytes, but are tentatively identified by their mass spectra, and roughly quantified based upon the response of an internal standard

⁶NA = Not Applicable

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA			RTN: 3-19174	
City or Town:	Framingham		Address:	133 Leland Street				Location:
Date Sampled:	8/6/12	Time:	11:20 AM	Field ID:	SE site	Collector:	Fitzgerald	
Date Analyzed:	8/6/12	Time:	11:40 AM	Lab ID:	001	Analyst:	Fitzgerald	
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym	
	ppbV	µg/m ³	ppbV	µg/m ³				
Vinyl Chloride	N.D.	N.D.	5	13	0.719	0.024	Chloroethene	
Bromomethane	N.D.	N.D.	5	22	0.955	0.014	Methyl Bromide	
Chloroethane	N.D.	N.D.	5	23	0.992	0.041	Ethyl Chloride	
Trichloromonofluoromethane	N.D.	N.D.	30	210	0.785	0.034	Freon 11	
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride	
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane	
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0.863	0.035	Freon 113	
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0		
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0.886	0.042	cis-1,2-Dichloroethene	
Chloroform	N.D.	N.D.	1	4.9	0.927	0.049	Trichloromethane	
1,2-Dichloroethane	N.D.	N.D.	5	20	0.963	0.012	Ethylene Dichloride	
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0.886	0.042	Methyl Chloroform	
Benzene	N.D.	N.D.	1	3.2	0.946	0.09		
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.851	0.011	Tetrachloromethane	
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0.508	0.107	Propylene Dichloride	
Trichloroethylene	N.D.	N.D.	1	5.4	0.989	0.238	Trichloroethene	
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0.774	0.041		
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0		
Toluene	0.6	2.2	1	3.8	0.997	0.501		
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide	
Tetrachloroethylene	0.4	2.9	1	6.8	0.95	0.584	Perchloroethylene	
Chlorobenzene	N.D.	N.D.	1	4.6	0	0		
Ethylbenzene	N.D.	N.D.	1	4.3	0.965	0.183		
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.902	0.153		
Styrene	9.9	42.2	1	4.3	0.998	0.633	Vinyl benzene	
o-Xylene	N.D.	N.D.	1	4.3	0.994	0.263		
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0	0		
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.994	0.198	Mesitylene	
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.994	0.198		
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene	
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o – Dichlorobenzene	
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p – Dichlorobenzene	
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0		
HexachloroButadiene	N.D.	N.D.	5	53	0	0		
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.								
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check					
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11	
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match								
COMMENTS:								

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Date Sampled:	8/6/12	Time:	12:10 PM	Field ID:	AR-3	Collector:	Fitzgerald
Date Analyzed:	8/6/12	Time:	12:16 PM	Lab ID:	002	Analyst:	Fitzgerald
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym
	ppbV	µg/m ³	ppbV	µg/m ³			
Vinyl Chloride	N.D.	N.D.	5	13	0.835	0.052	Chloroethene
Bromomethane	N.D.	N.D.	5	22	0.55	0.013	Methyl Bromide
Chloroethane	N.D.	N.D.	5	23	0.743	0.032	Ethyl Chloride
Trichloromonofluoromethane	N.D.	N.D.	30	210	0.821	0.037	Freon 11
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride
Methylene Chloride	N.D.	N.D.	1	3.5	0.858	0.048	Dichloromethane
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0.744	0.051	Freon 113
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0	
Cis-1,2-Dichloroethylene	N.D.	N.D.	1	4	0	0	cis-1,2-Dichloroethene
Chloroform	N.D.	N.D.	1	4.9	0	0	Trichloromethane
1,2-Dichloroethane	N.D.	N.D.	5	20	0.884	0.007	Ethylene Dichloride
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0	0	Methyl Chloroform
Benzene	N.D.	N.D.	1	3.2	0.856	0.075	
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.993	0.074	Tetrachloromethane
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride
Trichloroethylene	N.D.	N.D.	1	5.4	0.865	0.082	Trichloroethene
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0	
Toluene	0.9	3.3	1	3.8	0.999	0.6	
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide
Tetrachloroethylene	1.9	12.7	1	6.8	0.975	0.879	Perchloroethylene
Chlorobenzene	N.D.	N.D.	1	4.6	0	0	
Ethylbenzene	N.D.	N.D.	1	4.3	0.995	0.226	
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.994	0.229	
Styrene	1.6	6.6	1	4.3	0.999	0.559	Vinyl benzene
o-Xylene	N.D.	N.D.	1	4.3	0.892	0.13	
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0	0	
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.855	0.132	Mesitylene
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.965	0.184	
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o - Dichlorobenzene
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p - Dichlorobenzene
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0	
HexachloroButadiene	N.D.	N.D.	5	53	0	0	
¹ Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.							
Instrument: HAPSITE Smart Plus GC/MS				Quality Control: 3-6 point cal w/ %RSD<30, Int Stds, daily blank, daily cal check			
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match							
COMMENTS:							

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA			RTN: 3-19174	
City or Town:	Framingham		Address:	133 Leland Street				Location:
Date Sampled:	8/6/12	Time:	12:35 PM	Field ID:	AR-4	Collector:	Fitzgerald	Near Area RAE #4
Date Analyzed:	8/6/12	Time:	12:48 PM	Lab ID:	003	Analyst:	Fitzgerald	
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym	
	ppbV	µg/m³	ppbV	µg/m³				
Vinyl Chloride	N.D.	N.D.	5	13	0.703	0.015	Chloroethene	
Bromomethane	N.D.	N.D.	5	22	0.987	0.02	Methyl Bromide	
Chloroethane	N.D.	N.D.	5	23	0.754	0.06	Ethyl Chloride	
Trichloromonofluoromethane	N.D.	N.D.	30	210	0	0	Freon 11	
1,1-Dichloroethene	N.D.	N.D.	1	4	0.578	0.018	Vinylidene Chloride	
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane	
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0	0	Freon 113	
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0		
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0	0	cis-1,2-Dichloroethene	
Chloroform	N.D.	N.D.	1	4.9	0.995	0.031	Trichloromethane	
1,2-Dichloroethane	N.D.	N.D.	5	20	0	0	Ethylene Dichloride	
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0	0	Methyl Chloroform	
Benzene	N.D.	N.D.	1	3.2	0	0		
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.954	0.076	Tetrachloromethane	
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride	
Trichloroethylene	N.D.	N.D.	1	5.4	0.913	0.249	Trichloroethene	
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0		
Toluene	0.5	1.9	1	3.8	0.945	0.456		
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide	
Tetrachloroethylene	0.4	2.5	1	6.8	0.953	0.586	Perchloroethylene	
Chlorobenzene	N.D.	N.D.	1	4.6	0	0		
Ethylbenzene	N.D.	N.D.	1	4.3	0.977	0.161		
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.961	0.214		
Styrene	2.0	8.5	1	4.3	0.999	0.597	Vinyl benzene	
o-Xylene	N.D.	N.D.	1	4.3	0.971	0.216		
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0.921	0.029		
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.971	0.186	Mesitylene	
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.997	0.249		
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene	
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o – Dichlorobenzene	
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p – Dichlorobenzene	
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0		
HexachloroButadiene	N.D.	N.D.	5	53	0	0		
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.								
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check					
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Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match								
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City or Town:	Framingham		Address:	133 Leland Street				Location:
Date Sampled:	8/6/12	Time:	1:02 PM	Field ID:	B-1	Collector:	Fitzgerald	Outside Bldg No. 1
Date Analyzed:	8/6/12	Time:	1:20 PM	Lab ID:	004	Analyst:	Fitzgerald	
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym	
	ppbV	µg/m³	ppbV	µg/m³				
Vinyl Chloride	N.D.	N.D.	5	13	0.671	0.018	Chloroethene	
Bromomethane	N.D.	N.D.	5	22	0.958	0.02	Methyl Bromide	
Chloroethane	N.D.	N.D.	5	23	0.687	0.026	Ethyl Chloride	
Trichloromonofluoromethane	N.D.	N.D.	30	210	0.95	0.052	Freon 11	
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride	
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane	
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0.841	0.057	Freon 113	
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0		
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0	0	cis-1,2-Dichloroethene	
Chloroform	N.D.	N.D.	1	4.9	0	0	Trichloromethane	
1,2-Dichloroethane	N.D.	N.D.	5	20	0	0	Ethylene Dichloride	
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0	0	Methyl Chloroform	
Benzene	0.3	1.1	1	3.2	0.951	0.261		
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.947	0.086	Tetrachloromethane	
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride	
Trichloroethylene	N.D.	N.D.	1	5.4	0	0	Trichloroethene	
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0		
Toluene	0.5	1.9	1	3.8	0.986	0.524		
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide	
Tetrachloroethylene	N.D.	N.D.	1	6.8	0.737	0.22	Perchloroethylene	
Chlorobenzene	N.D.	N.D.	1	4.6	0	0		
Ethylbenzene	N.D.	N.D.	1	4.3	0.993	0.193		
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.998	0.317		
Styrene	0.5	2.2	1	4.3	1	0.454	Vinyl benzene	
o-Xylene	N.D.	N.D.	1	4.3	0.986	0.206		
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0	0		
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.919	0.155	Mesitylene	
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.962	0.181		
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene	
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o - Dichlorobenzene	
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p - Dichlorobenzene	
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0		
HexachloroButadiene	N.D.	N.D.	5	53	0	0		
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.								
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Int Stds, daily blank, daily cal check					
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11	
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match								
COMMENTS:								

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA			RTN: 3-19174	
City or Town:	Framingham		Address:	133 Leland Street				Location:
Date Sampled:	8/6/12	Time:	1:45 PM	Field ID:	AR-3(2)	Collector:	Immerman	Near AR-3 and tent
Date Analyzed:	8/6/12	Time:	1:58 PM	Lab ID:	005	Analyst:	Fitzgerald	
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym	
	ppbV	µg/m³	ppbV	µg/m³				
Vinyl Chloride	N.D.	N.D.	5	13	0.962	0.015	Chloroethene	
Bromomethane	N.D.	N.D.	5	22	0.774	0.014	Methyl Bromide	
Chloroethane	N.D.	N.D.	5	23	0.85	0.028	Ethyl Chloride	
Trichloromonofluoromethane	N.D.	N.D.	30	210	0	0	Freon 11	
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride	
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane	
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0	0	Freon 113	
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0		
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0	0	cis-1,2-Dichloroethene	
Chloroform	N.D.	N.D.	1	4.9	0.882	0.003	Trichloromethane	
1,2-Dichloroethane	N.D.	N.D.	5	20	0.786	0.005	Ethylene Dichloride	
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0	0	Methyl Chloroform	
Benzene	N.D.	N.D.	1	3.2	0.894	0.115		
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.926	0.118	Tetrachloromethane	
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride	
Trichloroethylene	N.D.	N.D.	1	5.4	0	0	Trichloroethene	
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0		
Toluene	0.5	2.1	1	3.8	0.999	0.52		
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide	
Tetrachloroethylene	N.D.	N.D.	1	6.8	0	0	Perchloroethylene	
Chlorobenzene	N.D.	N.D.	1	4.6	0	0		
Ethylbenzene	N.D.	N.D.	1	4.3	0.977	0.171		
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.979	0.233		
Styrene	0.8	3.6	1	4.3	1	0.572	Vinyl benzene	
o-Xylene	N.D.	N.D.	1	4.3	0.867	0.107		
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0	0		
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.996	0.204	Mesitylene	
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.996	0.204		
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene	
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o – Dichlorobenzene	
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p – Dichlorobenzene	
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0		
HexachloroButadiene	N.D.	N.D.	5	53	0	0		
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.								
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check					
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11	
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match								
COMMENTS:								

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA		RTN: 3-19174	
City or Town:	Framingham		Address:	133 Leland Street			Location:
Date Sampled:	8/6/12	Time:	2:50 PM	Field ID:	tank	Collector:	Fitzgerald
Date Analyzed:	8/6/12	Time:	3:04 PM	Lab ID:	007	Analyst:	Fitzgerald
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym
	ppbV	µg/m³	ppbV	µg/m³			
Vinyl Chloride	N.D.	N.D.	5	13	0	0	Chloroethene
Bromomethane	N.D.	N.D.	5	22	0.999	0.018	Methyl Bromide
Chloroethane	3.9	10.2	5	23	0.98	0.127	Ethyl Chloride
Trichloromonofluoromethane	N.D.	N.D.	30	210	0	0	Freon 11
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride
Methylene Chloride	N.D.	N.D.	1	3.5	0.541	0.027	Dichloromethane
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0	0	Freon 113
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0	
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0.458	0.004	cis-1,2-Dichloroethene
Chloroform	N.D.	N.D.	1	4.9	0	0	Trichloromethane
1,2-Dichloroethane	N.D.	N.D.	5	20	0.703	0.004	Ethylene Dichloride
1,1,1-Trichloroethane	0.2	1.1	1	5.5	0.999	0.197	Methyl Chloroform
Benzene	N.D.	N.D.	1	3.2	0.995	0.17	
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.724	0.036	Tetrachloromethane
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride
Trichloroethylene	0.6	3.0	1	5.4	0.989	0.547	Trichloroethene
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0	
Toluene	0.3	1.2	1	3.8	0.998	0.466	
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide
Tetrachloroethylene	0.6	4.3	1	6.8	0.974	0.792	Perchloroethylene
Chlorobenzene	N.D.	N.D.	1	4.6	0	0	
Ethylbenzene	N.D.	N.D.	1	4.3	0.939	0.172	
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.998	0.315	
Styrene	1.1	4.7	1	4.3	0.999	0.55	Vinyl benzene
o-Xylene	N.D.	N.D.	1	4.3	0.892	0.119	
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0.642	0.018	
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.967	0.207	Mesitylene
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.998	0.231	
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o - Dichlorobenzene
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p - Dichlorobenzene
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0	
HexachloroButadiene	N.D.	N.D.	5	53	0	0	
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.							
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check				
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match							
COMMENTS:							

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA			RTN: 3-19174
City or Town:	Framingham		Address:	133 Leland Street			Location:
Date Sampled:	8/6/12	Time:	3:30 PM	Field ID:	SE	Collector:	Fitzgerald
Date Analyzed:	8/6/12	Time:	3:41 PM	Lab ID:	008	Analyst:	Fitzgerald
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym
	ppbV	µg/m ³	ppbV	µg/m ³			
Vinyl Chloride	N.D.	N.D.	5	13	0	0	Chloroethene
Bromomethane	N.D.	N.D.	5	22	0.837	0.016	Methyl Bromide
Chloroethane	N.D.	N.D.	5	23	0.975	0.073	Ethyl Chloride
Trichloromonofluoromethane	N.D.	N.D.	30	210	0.943	0.04	Freon 11
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0.82	0.035	Freon 113
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0	
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0.942	0.031	cis-1,2-Dichloroethene
Chloroform	N.D.	N.D.	1	4.9	0	0	Trichloromethane
1,2-Dichloroethane	N.D.	N.D.	5	20	0.598	0.003	Ethylene Dichloride
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0	0	Methyl Chloroform
Benzene	N.D.	N.D.	1	3.2	0	0	
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.787	0.094	Tetrachloromethane
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride
Trichloroethylene	N.D.	N.D.	1	5.4	0.695	0.063	Trichloroethene
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0	
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0	
Toluene	0.3	1.0	1	3.8	0.997	0.396	
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide
Tetrachloroethylene	N.D.	N.D.	1	6.8	0	0	Perchloroethylene
Chlorobenzene	N.D.	N.D.	1	4.6	0	0	
Ethylbenzene	N.D.	N.D.	1	4.3	0.936	0.182	
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.967	0.206	
Styrene	1.0	4.4	1	4.3	1	0.603	Vinyl benzene
o-Xylene	N.D.	N.D.	1	4.3	0.973	0.207	
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0	0	
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.962	0.152	Mesitylene
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.999	0.194	
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0.638	0.025	m- Dichlorobenzene
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0.669	0.026	o - Dichlorobenzene
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0.63	0.025	p - Dichlorobenzene
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0	
HexachloroButadiene	N.D.	N.D.	5	53	0	0	
¹ Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.							
Instrument: HAPSITE Smart Plus GC/MS				Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check			
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).							Last Calibration: 3/31/11
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match							
COMMENTS:							

MassDEP Field Assessment and Support Team (FAST)				AIR SCREENING DATA			RTN: 3-19174	
City or Town:	Framingham		Address:	133 Leland Street				Location:
Date Sampled:	8/6/12	Time:	4:10 PM	Field ID:	Rack	Collector:	Fitzgerald	Loading Rack Area
Date Analyzed:	8/6/12	Time:	4:21 AM	Lab ID:	009	Analyst:	Fitzgerald	
Method Analytes	Concentration		Reporting Limit		Peak Fit	Peak Purity	Synonym	
	ppbV	µg/m³	ppbV	µg/m³				
Vinyl Chloride	N.D.	N.D.	5	13	0	0	Chloroethene	
Bromomethane	N.D.	N.D.	5	22	0	0	Methyl Bromide	
Chloroethane	N.D.	N.D.	5	23	0.76	0.053	Ethyl Chloride	
Trichloromonofluoromethane	N.D.	N.D.	30	210	0.774	0.011	Freon 11	
1,1-Dichloroethene	N.D.	N.D.	1	4	0	0	Vinylidene Chloride	
Methylene Chloride	N.D.	N.D.	1	3.5	0	0	Dichloromethane	
1,1,2-Trichlorotrifluoroethane	N.D.	N.D.	1	7.7	0.684	0.029	Freon 113	
1,1-Dichloroethane	N.D.	N.D.	1	4.1	0	0		
Cis 1,2-Dichloroethylene	N.D.	N.D.	1	4	0	0	cis-1,2-Dichloroethene	
Chloroform	N.D.	N.D.	1	4.9	0	0	Trichloromethane	
1,2-Dichloroethane	N.D.	N.D.	5	20	0	0	Ethylene Dichloride	
1,1,1-Trichloroethane	N.D.	N.D.	1	5.5	0.739	0.013	Methyl Chloroform	
Benzene	N.D.	N.D.	1	3.2	0	0		
Carbon Tetrachloride	N.D.	N.D.	1	6.3	0.967	0.072	Tetrachloromethane	
1,2-Dichloropropane	N.D.	N.D.	1	4.6	0	0	Propylene Dichloride	
Trichloroethylene	N.D.	N.D.	1	5.4	0	0	Trichloroethene	
cis-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
trans-1,3-Dichloropropene	N.D.	N.D.	1	4.5	0	0		
1,1,2-Trichloroethane	N.D.	N.D.	1	5.5	0	0		
Toluene	0.7	2.6	1	3.8	0.997	0.607		
1,2-Dibromoethane	N.D.	N.D.	1	7.7	0	0	Ethylene Dibromide	
Tetrachloroethylene	N.D.	N.D.	1	6.8	0.882	0.398	Perchloroethylene	
Chlorobenzene	N.D.	N.D.	1	4.6	0	0		
Ethylbenzene	N.D.	N.D.	1	4.3	0.971	0.241		
p/m-Xylene (see note)	N.D.	N.D.	1	4.3	0.854	0.178		
Styrene	0.8	3.4	1	4.3	0.999	0.553	Vinyl benzene	
o-Xylene	N.D.	N.D.	1	4.3	0.972	0.262		
1,1,2,2-Tetrachloroethane	N.D.	N.D.	5	34	0.949	0.022		
1,3,5-Trimethylbenzene	N.D.	N.D.	5	25	0.984	0.253	Mesitylene	
1,2,4-Trimethylbenzene	N.D.	N.D.	5	25	0.988	0.254		
1,3-Dichlorobenzene (meta)	N.D.	N.D.	5	30	0	0	m- Dichlorobenzene	
1,2-Dichlorobenzene (ortho)	N.D.	N.D.	5	30	0	0	o - Dichlorobenzene	
1,4-Dichlorobenzene (para)	N.D.	N.D.	5	30	0	0	p - Dichlorobenzene	
1,2,4-Trichlorobenzene	N.D.	N.D.	5	37	0	0		
HexachloroButadiene	N.D.	N.D.	5	53	0	0		
¹Concentration for combined p- & m- Xylenes could be up to twice the listed value, due to co-elution conditions.								
Instrument: HAPSITE Smart Plus GC/MS			Quality Control: 3-6 point cal w/ %RSD<30, Internal Stds, daily blank, daily cal check					
N.D. = Not Detected Italicized = estimated "J" value (concentration is less than Reporting Limit).			Last Calibration: 3/31/11					
Peak Fit=agreement w/ spectral database; Peak Purity=interference from coeluting compounds. Fit >0.5 likely, >0.85 very likely match								
COMMENTS:								